

Application No. 09/8773

Filed: June 19, 2001

TC Art Unit 2663

Confirmation No. 2294

REMARKS

In response to an Office Action mailed on December 8, 2004, Applicant respectfully requests that the above-listed Amendments be entered and the Application be reconsidered. With entry of the above-listed Amendments, claim 2 is amended. Thus, 33 claims are presented for examination. Of these, claims 1 and 18 are independent, and the remaining claims are dependent.

The Examiner objected to the Abstract and the specification of the disclosure due to various informalities. The Abstract and the specification have been amended to overcome the objections.

The Examiner objected to claim 2 due to various informalities. Claim 2 has been amended to overcome the objections.

The Examiner rejected claims 1, 6-8, 18 and 22-24 under 35 U.S.C. 103(a) as being obvious over US Pat. No. 6,678,474 to Masuda, *et al.* ("Masuda") in view of US Pat. App. No. US2001/0036185 to Dempo ("Dempo"). Claim 1 recites a method for transferring variable-length data frames across a synchronous network, including encapsulating each data frame in a corresponding point-to-point frame, dividing each point-to-point frame into a corresponding set of fixed-sized segments and transmitting the segments of each point-to-point frame as a corresponding set of payloads.

Masuda discloses encapsulating Internet protocol (IP) packets into a "lightwave adaptation frame." Dempo discloses a router that detects IP packets that are larger than a maximum transfer unit (MTU) size. The router fragments such IP packets into a plurality of IP packets, each of which is smaller than the MTU. It is not believed that Masuda and Dempo can be properly combined to render the claimed invention obvious, because neither Masuda nor Dempo contain any motivation to combine the other reference. Furthermore, the combination of Masuda and Dempo would not yield the claimed invention, because Dempo does not teach dividing a point-to-point frame, as that term is used in the Application. Each of these reasons is discussed in more detail below.

Masuda discloses a "lightwave" network 17 that includes a plurality of edge routers 12 that interconnect the lightwave network to respective subscriber networks 16. The routers 12 encapsulate IP packets from the subscriber networks 17 into lightwave adaptation frames, so the IP packets can be relayed over the lightwave network.

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Dempo discloses fragmenting IP packets into smaller IP packets. In an IP network, the maximum size of a packet that can be sent over a link is specified by a parameter called "~~maximum~~ transfer unit" (MTU). Dempo discloses a router that receives IP packets. If any received IP packet is larger than the MTU, the router fragments the over-sized IP packet into a plurality of IP packets, each of which is a smaller than the MTU. The router then forwards the plurality of (smaller) IP packets over the link. Each of the smaller IP packets is a complete IP packet, i.e. each smaller IP packet meets the network's protocol requirements for a complete, routable IP packet. For example, each such packet includes a header with routing information. Thus, each of the smaller IP packets can be sent over the link and routed over an IP network on its own.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. (MPEP 706.02(j).) Nowhere does Masuda disclose any problem or difficulty that might be solved by fragmenting encapsulated IP packets into smaller IP packets, nor does Masuda provide any other motivation for combining the Dempo reference. Similarly, nowhere does Dempo disclose any problem or difficulty that might be solved by encapsulating an IP packet before fragmenting the IP packet, nor does Dempo provide any other motivation for combining the Masuda reference. Thus, neither reference provides a suggestion or motivation to combine the other reference.

To establish a *prima facie* case of obviousness, there must also be a reasonable expectation of success. Encapsulating an IP packet (as taught by Masuda), then fragmenting the encapsulated IP packet into a plurality of smaller IP packets (as taught by Dempo), would not be appropriate for transmitting the smaller IP packets as corresponding sets of payloads across a synchronous network employing a multiple-channel synchronous transport signal, as recited in claim 1. This is so, because the payloads are not transferred over an IP network. Instead, the payloads are transmitted over at least one channel of a synchronous transport signal. The protocol used to transfer payloads over the synchronous transport signal is completely different than the protocol used to transmit IP packets over an IP network. The IP header would be completely useless. The IP header would unnecessarily enlarge each of the smaller IP packets, thereby negating the advantages provided by the present invention.

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According to the present disclosure, a data frame is encapsulated in a point-to-point ~~frame~~. The point-to-point frame is then divided into a set of fixed-sized segments. "Divided" here ~~means~~ "cut up." The segments are not independently routable packets. Instead, the segments are ~~simply~~ "slices" of the point-to-point frame. The recited segments are unlike Dempo's smaller IP ~~packets~~, because these segments cannot be independently routed over a network. Instead, the segments are transmitted as a set of payloads of a synchronous transport signal. In contrast, as shown in Dempo's Fig. 2, Dempo fragments an "original IP packet" (a) into a plurality of IP packets (c), each of which includes a header portion. That is, each of Dempo's smaller IP packets is independently ~~routable~~ over an IP network. (See, paragraph 0070.)

Thus, Dempo does not disclose "dividing each point-to-point frame into a corresponding set of fixed-sized segments," as recited in claim 1. Similarly, Dempo does not disclose "receiving each set of payloads ... and ... regenerating the corresponding point-to-point frame," as recited in claim 1. No art of record, either alone or in combination, discloses or suggests a method for transferring variable-length data frames across a synchronous network employing a multiple-channel synchronous transport signal, as recited in claim 1. For at least this reason, claim 1 is believed to be allowable. Claims 6-8 depend directly or indirectly from claim 1. Claims 6-8 are, therefore, believed to be allowable, for at least the reasons discussed above with respect to claim 1.

As discussed above with respect to claim 1, Dempo does not disclose segmentation logic or receiving circuitry, as recited in claim 18. For at least this reason, claim 18 is believed to be allowable. Claims 22-24 depend directly or indirectly from claim 18. Claims 22-24 are, therefore, believed to be allowable, for at least the reasons discussed above with respect to claim 18.


The Applicant notes with appreciation the Examiner's identification of allowable subject matter in claims 3-5, 9-17, 19-21 and 25-33. However, it is not believed that these claims need to be rewritten in independent form, inasmuch as the claims they depend from are believed to be allowable, as discussed above.

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For all the foregoing reasons, it is respectfully submitted that the present Application ~~is a~~
condition for allowance, and such action is earnestly solicited. The Examiner is encouraged ~~to~~
telephone the undersigned attorney to discuss any matter that would expedite allowance ~~of the~~
present Application.

Respectfully submitted,

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